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Vera S. Sorokina, Nikita E. Vikhrev & Nikolay N. Tridrikh

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A preliminary list of the Muscidae (Diptera) of the Magadan region, Russia

Vera S. Sorokina^{a*}, Nikita E. Vikhrev^b & Nikolay N. Tridrikh^c

^aSiberian Zoological Museum, Institute of Systematics and Ecology of Animals, Russian Academy of Sciences, Siberian Branch, Frunze str. 11, Novosibirsk 630091, Russia; ^bZoological Museum of Moscow University, Bolshaya Nikitskaya str. 2, Moscow 125009, Russia; ^cMagadan National Nature Reserve, Koltsevaya str. 17, Magadan 685000, Russia

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Summary. A preliminary list is given of the species of the Muscidae (Diptera) of the Magadan region, including 93 species in 23 genera. Eighty-one species are newly recorded from this territory. Six species [*Spilogona aenea* Hockett, 1965, *S. bifimbriata* Hockett, 1965, *S. fulvibasis* Hockett, 1965, *S. incerta* Hockett, 1965, *S. separata* Hockett, 1965, *S. trigonifera* (Zetterstedt, 1838)] are newly recorded for Russia. All these species, except *Spilogona trigonifera*, are newly recorded for the Palaearctic region. The species list includes the material examined, ecological data of some species, the distribution and all known references to each species. According to preliminary estimates, this list reflects 60% of expected species in the Magadan region. Two new synonyms are proposed: *Coenosia shumshuensis* Shinonaga & Zhang, 2000, **n. syn.** for *C. alaskensis* Hockett, 1965, and *Coenosia remissa* Hockett, 1965, **n. syn.** for *C. ciliata* Hennig 1961.

Résumé. Liste préliminaire des Muscidae (Diptera) de la région de Magadan, en Russie. Une liste préliminaire des espèces de Muscidae (Diptères) de la région de Magadan, comprenant 93 espèces appartenant à 23 genres, est donnée. Quatre-vingt et une espèces sont nouvellement répertoriées sur ce territoire. Six espèces [*Spilogona aenea* Hockett, 1965, *S. bifimbriata* Hockett, 1965, *S. fulvibasis* Hockett, 1965, *S. incerta* Hockett, 1965, *S. separata* Hockett, 1965 et *S. trigonifera* (Zetterstedt, 1838)] sont nouvellement citées de Russie. Toutes ces espèces, à l'exception de *Spilogona trigonifera*, sont nouvelles pour la région Paléarctique. La liste des espèces comprend le matériel examiné, les données écologiques de certaines espèces, la distribution et toutes les références connues pour chaque espèce. Selon des estimations préliminaires, cette liste reflète 60 % des espèces attendues dans la région de Magadan. Deux nouveaux synonymes sont proposés : *Coenosia shumshuensis* Shinonaga & Zhang 2000, **n. syn.** for *C. alaskensis* Hockett, 1965, et *Coenosia remissa* Hockett 1965, **n. syn.** for *C. ciliata* Hennig, 1961.

Keywords: fauna; distribution; synonyms; Russian Far East

Flies of the family Muscidae inhabit various geographic zones and are one of the dominant components in those northern regions experiencing extreme climatic conditions (Vockeroth 1979; Danks 1981, 1990; Chernov 1995; Barkalov 2012). The study of insect populations in such territories is of interest, since the conditions there are close to the limits for life and even small changes can have a significant effect (Danks 1992; Hodkinson 2013). Despite this, the vast northern territories of Russia still remain little studied with regard to the Muscidae. Investigation of these extreme regions will undoubtedly increase knowledge of Russian Muscidae as a whole.

Recent years have seen an increase in the study of the Diptera in the north of Russia: for example, Nenets Autonomous Okrug, Yamalo-Nenets Autonomous Okrug, Taimyr Peninsula, Yakutia, Chukotka Peninsula, Wrangel Island (Sorokina 2010 (2009), 2012a, 2012b, 2017; Sorokina & Khruleva 2012; Sorokina & Michelsen 2014; Sorokina & Pont 2010, 2013, 2015; Sorokina et al. 2016).

Currently 173 species of muscid belonging to 28 genera are known from the north of Russia (Sorokina 2017).

Until recently, virtually no investigation of the vast Magadan region has been undertaken. A characteristic of the region is the severity of the climate and the deep penetration of the subarctic south, up to 59°N, which is determined by the proximity of the Arctic and Pacific oceans, mountain relief and permafrost. The climate of the inland central areas differs significantly from that on the coast and in turn affects the composition of the fauna in those areas. Bio-zones include tundra, forest-tundra and northern taiga, and in the mountains there is a high-altitude zone. Throughout the area there are densely braided river systems and numerous lakes and marshes. Despite the severity of the climate, the variety of natural conditions in the Magadan region suggests the presence of a rich muscid fauna.

To date the Muscidae of Magadan region have not been specifically studied. They are first mentioned in a

*Corresponding author. Email: sorokinavs@mail.ru

general report on the muscid subfamily Phaoniinae of the Russian Far East (Zinovjev 1980), where three species are recorded: *Phaonia errans* (Meigen, 1826), *P. hybrida* (Schnabl, 1888), and *P. lugubris* (Meigen, 1826) (recorded as *Phaonia morio* (Zetterstedt, 1845)). For many years there was no further recording of muscids, until the present authors recorded eight more species for the region: *Thricops diaphanus* Wiedemann, 1817 (Vikhrev & Sorokina 2009), *Lispe tentaculata* (De Geer, 1776) (Vikhrev 2011), *Hydrotaea atrisquama* Ringdahl, 1925 (Vikhrev 2015), *H. tuberculata* Rondani, 1866 (Vikhrev & Sorokina 2017), *Drymeia vicana* (Harris, 1780) (Sorokina & Pont 2015), *Coenosia xuei* Cui & Li, 1996 (Sorokina 2014), *C. demoralis* Hockett, 1965 (Vikhrev & Sorokina 2017) and *Mesembrina resplendens* Wahlberg, 1844 (Tridrikh 2016). Thus 11 species of Muscidae had been recorded from the Magadan region.

The authors of this paper visited the Magadan region in the summers of 2014 and 2017 to sample the muscid fauna. The results of this fieldwork plus the study of material preserved in collections at the Zoological Institute (St. Petersburg) have significantly increased knowledge of species composition and distribution in the Magadan region: we now recognise 93 species of Muscidae belonging to 23 genera. The species list includes six species previously unknown from Russia, with five of them also previously unknown from the

Palearctic region, and 10 species previously unknown from the Russian Far East.

The aim of this paper is to present an annotated list of all the species currently known from the Magadan region. The list is essentially preliminary as it is estimated to include no more than 60% of the species expected to occur in this region.

Material and methods

The material used in this study is deposited in the Siberian Zoological Museum of the Institute of Systematics and Ecology of Animals, Russian Academy of Sciences, Siberian Branch, Novosibirsk (SZMN), the Zoological Museum of the Moscow State University, Moscow (ZMUM), the Zoological Institute, St. Petersburg (ZISP) and the Local History Museum, Magadan (LHMM).

Specimens were examined using an Altami PSO745-T microscope for external morphological features. Pictures were made with a Canon EOS 600D camera.

The classification follows that in *An annotated catalogue of the Muscidae (Diptera) of Siberia* (Sorokina & Pont 2010).

The species noted for the first time in the Palearctic region are marked with an asterisk (*) and those for the first time in Russia are marked with double asterisk (**).

In the lists of specimens given below, the abbreviations ZMUM, ZISP and LHMM indicate in which institute the specimen is deposited, whilst all other material is in SZNM.

The localities where Muscidae have been collected in the Magadan region are shown on the map (Figure 1).

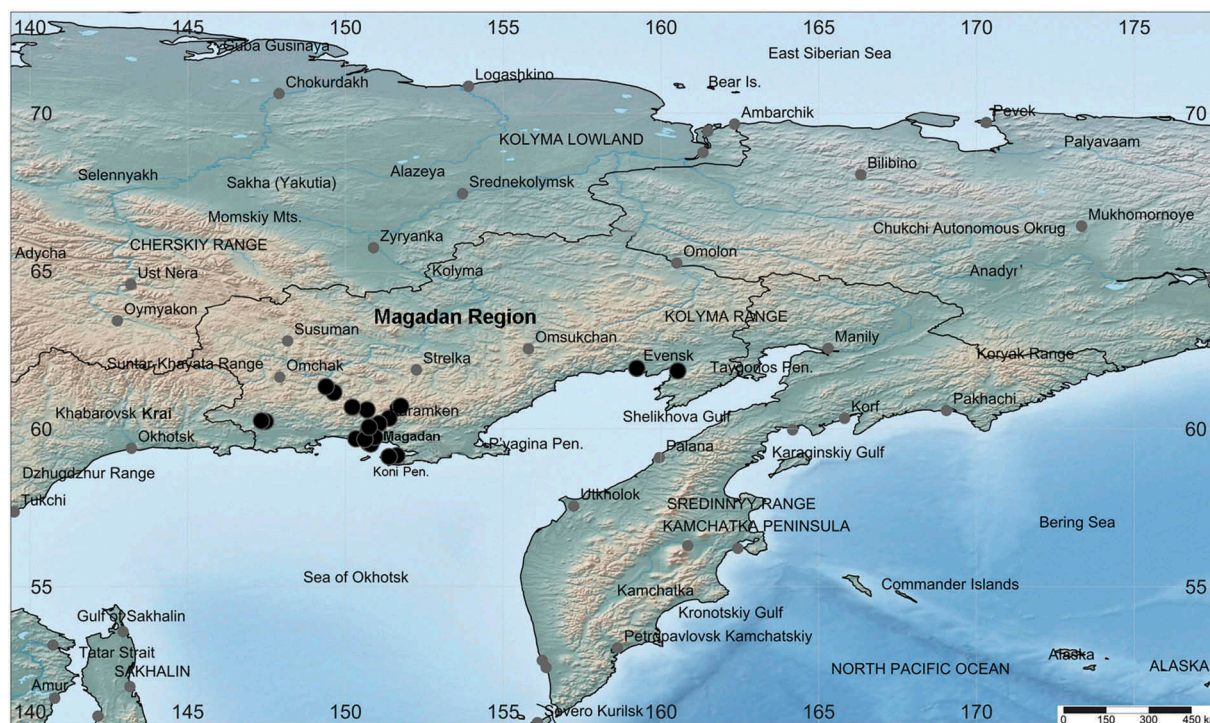


Figure 1. Map showing collection locations in the Magadan region.

Results**List of Muscidae species known from the Magadan region****Azeliinae****Reinwardtiini*****Muscina Robineau-Desvoidy, 1830******Muscina levida* (Harris, 1780)**

Material examined. Ust'-Omchug, 61°09'N 149°38'E, on *Chosenia arbutifolia*, 29–30.VI.1971 and 1.VII.1971, 8♂, leg. Gorodkov (ZISP); Koni Peninsula, environs of Cape Ploskyi cordon, valley of Khindzha River, on house window, 59°09'N 151°38'E, 26.VI.2016, 1♀, leg. N. Tridrikh (LHMM); Magadan, environs of city, 2 km from the traffic police station towards Solnechnyi village, in pit with chicken droppings and offal, 59°38'N 150°51'E, 12.VII.2017, 2♀ 3♂, leg. V. Sorokina.

Distribution. Throughout the Holarctic, also Mexico, China, Hawai'i and Midway Atoll.

***Muscina stabulans* (Fallén, 1817)**

Material examined. Evensk, 61°55'N 159°14'E, 7.IX.1987, 1♂, leg. Gorodkov (ZISP); Nagaev Port, 59°33'N 150°44'E (Magadan seaport, Nagaev Bay of Taiu Bay), 10.IX.1963, 1♂, leg. Kononov (ZISP); Magadan, environs of city, 2 km from the traffic police station towards Solnechnyi village, in pit with chicken droppings and offal, 59°38'N 150°51'E, 13,18.VII.2017, 3♀ 2♂, leg. N. Tridrikh (LHMM).

Distribution. Cosmopolitan.

Azeliini***Drymeia* Meigen, 1826*****Drymeia taymirensis* Sorokina & Pont, 2015**

Material examined. Motorway R-504, 132 km NE Magadan, valley of Setes'mi River, 848 m, 60°40'N 151°41'E, 11.VII.2017, 1♀, leg. N. Tridrikh (LHMM); 53 km N Magadan, valley of Krasavitsa River, 247 m, 60°02'N 150°45'E, 10.VII.2017, 1♀, leg. N. Tridrikh (LHMM); 30 km W Magadan, Armani Pass, 137 m 59°41'N 150°20'E, 28.VI.2017, 2♀ 1♂, leg. V. Sorokina.

Distribution. Palaearctic: Russia (North of Siberia and Far East).

***Drymeia vicana* (Harris, 1780)**

Drymeia vicana; Sorokina & Pont 2015: 203.

Material examined. 24 km N Magadan, 26.VII.1990, 1♀, leg. M. Wood; Stekolnyi village, 60°06'N 150°75'E, 16–18.VII.2014, 2♀, leg. N. Vikhrev.

Distribution. Throughout the Palaearctic region.

Huckettomyia* Pont & Shinonaga, 1970**Huckettomyia watanabei* Pont & Shinonaga, 1970**

Material examined. N Magadan, Sokol village (56th km), ~59°55'N 150°43'E, larch forest, 24.VIII.1966, 1♀, leg. Gorodkov (ZISP); Koni Peninsula, environs of Cape Ploskyi cordon, valley of Khindzha River, 59°09'N 151°38'E, 1–9.VII.2016, 4♀, 2–7.VII.2017, 13♀, leg. N. Tridrikh, V. Sorokina (7♀ in SZNM, rest in LHMM); 92 km NE Magadan, valley of Donyshko River, 570 m, 60°20'N 151°23'E, 10.VII.2017, 5♀, leg. N. Tridrikh (LHMM); 69 km N Magadan, valley of Yagodniki stream, 438 m, 60°10'N 151°04'E, 10.VII.2017, 3♀, leg. N. Tridrikh (LHMM); motorway R-504, Yablonevnyi Pass, 120 km NNE Magadan, 783 m, valley of Ola River, 60°35'N 151°32'E, 11.VII.2017, 1♀, leg. N. Tridrikh (LHMM); confluence of the Kava and Chelomdzha Rivers, environs of Tsentralnyi cordon, road to the cordon from Talon village, 60°14'N 147°28'E, 1.VIII.2017, 1♀, leg. N. Tridrikh (LHMM); 1 km up Chelomdzha River from its confluence with the Kava River, 60°15'N 147°20'E, 4.VIII.2017, 1♀, leg. N. Tridrikh (LHMM).

Distribution. Palaearctic: Sweden, Russia (Siberia), North China, Japan.

Hydrotaea* Robineau-Desvoidy, 1830**Hydrotaea aenescens* (Wiedemann, 1830)**

Material examined. Magadan, environs of city, 2 km from the traffic police station towards Solnechnyi village, in pit with chicken droppings and offal, 59°38'N 150°51'E, 12.VII.2017, 12♀ 9♂, leg. V. Sorokina, 13–18.VII.2017, 10♀ 12♂, leg. N. Tridrikh (LHMM).

Distribution. Holarctic, Oriental, Australasian and Afrotropical regions.

***Hydrotaea anxia* (Zetterstedt, 1838)**

Material examined. Koni Peninsula, Cape Ploskyi cordon, 59°09'N 151°38'E, 4,6.VII.2017, 1♀, leg. V. Sorokina.

Distribution. Holarctic. In the Palaearctic only from northern Fennoscandia, northern Russia and Mongolia.

***Hydrotaea armipes* (Fallén, 1825)**

Material examined. Koni Peninsula, Cape Ploskyi cordon, 59°09'N 151°38'E, 4.6.VII.2017, 2♂, leg. V. Sorokina.

Distribution. Holarctic and northern parts of the Oriental region.

***Hydrotaea atrisquama* (Ringdahl, 1925)**

***Hydrotaea atrisquama*; Vikhrev 2015: 97.**

Material examined. Ust'-Omchug, 61°09'N 149°38'E, larch forest, 01.VII.1971, 1♀, leg. Chelnokov (ZISP).

Distribution. Palaearctic, Oriental regions.

***Hydrotaea dentipes* (Fabricius, 1805)**

Material examined. Magadan, 25.VIII.1966, 2♀, leg. Gorodkov (ZISP); Evensk, 61°55'N 159°14'E, 7.IX.1987, 1♀, leg. Gorodkov (ZISP); Koni Peninsula, environs of Cape Ploskyi cordon, valley of Khindzha River, 59°09'N 151°38'E, 29.VI.2016, 1♂, leg. N. Tridrikh (LHMM), 30.VI.2017, 2♂, 4, 5.VII.2017, 6♀ 13♂, leg. V. Sorokina; confluence of Kava and Chelomdzha Rivers, environs of Tsentralnyi cordon, road to the cordon from Talon village, 60°14'N 147°28'E, 1.VIII.2017, 1♀, leg. N. Tridrikh (LHMM); Magadan, environs of city, 2 km from the traffic police station towards Solnechnyi village, in pit with chicken droppings and offal, 59°38'N 150°51'E, 18.VII.2017, 3♀, 27.VIII.2017, 1♂, leg. N. Tridrikh (LHMM), 12.VII.2017, 1♀ 1♂, leg. V. Sorokina.

Distribution. Holarctic, and northern parts of the Oriental region.

***Hydrotaea pilipes* Stein, 1903**

Material examined. Koni Peninsula, Cape Ploskyi cordon, 59°09'N 151°38'E, 4.6.VII.2017, 1♀, leg. V. Sorokina.

Distribution. Holarctic.

***Hydrotaea pilitibia* Stein, 1916**

Material examined. Koni Peninsula, environs of Cape Ploskyi cordon, 59°09'N 151°38'E, 26.VI.2016, 2♀, leg. N. Tridrikh (LHMM); 92 km NE Magadan, valley of Donyshko River, 570 m, 60°20'N 151°23'E, 10.VII.2017, 1♀, N. Tridrikh (LHMM); Yablonevyy Pass, 120 km NNE Magadan, valley of Ola River, 60°35'N 151°32'E, 900 m, 17.VII.2014, 1♀ 1♂, leg. N. Vikhrev (ZMUM).

Distribution. Holarctic.

***Hydrotaea scambus* (Zetterstedt, 1838)**

Material examined. Upper part of Kolyma River, environs of Aborigen Mt. (~61°20'N 149°23'E), 11.VIII.1986, 1♀, leg. V. Dubatolov.

Distribution. Holarctic.

***Hydrotaea tuberculata* (Rondani, 1866)**

Hydrotaea tuberculata; Vikhrev and Sorokina 2017: 244.

Distribution. Holarctic region. In the Palaearctic, from Europe east to Russian Far East and Mongolia.

Thricops Rondani, 1856

***Thricops coquilletti* (Malloch, 1920)**

Material examined. Koni Peninsula, environs of Cape Ploskyi cordon, 59°09'N 151°38'E, 3.VII.2017, 1♂, leg. N. Tridrikh (LHMM); valley of Khindzha River, 6.VII.2017, 1♀ 1♂, leg. V. Sorokina; Magadan, environs of city, 2 km from the traffic police station towards Solnechnyi village, in pit with chicken droppings and offal, 59°38'N 150°51'E, 12.VII.2017, 1♀, leg. V. Sorokina, 13.VII.2017, 2♀ 1♂, leg. N. Tridrikh (LHMM).

Distribution. Holarctic. In the Palaearctic from Sweden, Finland, Mongolia, Russia (Altai Mts, Far East), China (Sichuan) and Japan (Kuril Is).

***Thricops cunctans* (Meigen, 1826)**

Material examined. Magadan, environs of city, foot of Marchekan hills, valley of small stream, 120 m 59°31'N 150°48'E, 12.VII.2017, 1♀ 7♂, leg. V. Sorokina, N. Tridrikh (3♂ in LHMM, rest in SZNM); 24 km N Magadan, 177 m 59°44'N 150°56'E, 29.VI.2017, 1♂, leg. V. Sorokina.

Distribution. Palaearctic, from Europe to Japan.

***Thricops diaphanus* Wiedemann, 1817**

Thricops diaphanus; Vikhrev and Sorokina 2009: 343.

Material examined. 20 km S Gizhiga village, "Chaibukha aerodrome", (~61°50'N 160°32'E), 2.IX.1987, 1♀, leg. Gorodkov (ZISP); environs of Sokol village, 59°54'N 150°45'E, 11–19.VII.2014, 1♀, leg. N. Vikhrev (ZMUM); Koni Peninsula, environs of Cape Ploskyi cordon, valley of Khindzha River, birch copse on slope, 59°09'N 151°38'E, 22.VIII.2017, 1♀, leg. N. Tridrikh (LHMM).

Distribution. Holarctic, and northern parts of the Oriental region.

***Thricops furcatus* (Stein, 1916)**

Material examined. Koni Peninsula, environs of Cape Ploskyi cordon, alpine meadow, 59°8'N 151°37'E, 20.VIII.2017, 5♀ 21♂, leg. N. Tridrikh (LHMM).

Distribution. Holarctic.

***Thricops innocuus* (Zetterstedt, 1838)**

Material examined. 24 km N Magadan, 177 m, 59°44'N 150°56'E, 29.VI.2017, 2♀ 1♂, leg. V. Sorokina; Madayn village, 120 km N Magadan, 60°36'N 150°41'E, 2.VII.1971, 1♂, leg. Gorodkov (ZISP); environs of Sokol village, 59°54'N 150°45'E, 11–19.VII.2014, 2♂, leg. N. Vikhrev (ZMUM).

Distribution. Holarctic.

***Thricops nigrifellus* (Zetterstedt, 1838)**

Material examined. Koni Peninsula, Cape Ploskyi cordon, valley of Khindzha River, 59°09'N 151°38'E, 6.VII.2017, 5♂, leg. N. Tridrikh, V. Sorokina (3♂ in SZNM, 2♂ in LHMM), 18.VIII.2017, 1♀, leg. N. Tridrikh (LHMM).

Distribution. Palaearctic, from Europe to China and Russian Far East.

***Thricops spiniger* (Stein, 1904)**

Material examined. Environs of Sokol village, 59°54'N 150°45'E, 11–19.VII.2014, 11♀ 16♂, leg. N. Vikhrev (ZMUM).

Distribution. Nearctic and Far East of Palaearctic.

Muscinae**Muscini*****Mesembrina* Meigen, 1826*****Mesembrina decipiens* Loew, 1873**

Material examined. Reserve “Magadansky”, Tsentralnyi cordon, 30 km N Talon village, 59°46'N 148°12'E, on flowers of *Lonicera* sp., 29.VII.2010, 1♀, leg. N. Tridrikh.

Distribution. East Palaearctic region, from Russia east of the Urals, Mongolia, the Korean Peninsula and China. Nearctic region.

***Mesembrina resplendens* Wahlberg, 1844**

Mesembrina gracilior; Tridrikh 2016: 293.

Material examined. Koni Peninsula, environs of Cape Ploskyi cordon, valley of Khindzha River, 59°09'N 151°38'E, 16.VII.2015, 2♀, leg. N. Tridrikh (LHMM), birch copse on a slope, 5.VII.2017, 1♀, leg. V. Sorokina, 22.VIII.2017, 1♀, leg. N. Tridrikh (LHMM).

Distribution. Palaearctic, from Europe east to the Russian Far East and China.

Morellia Robineau-Desvoidy, 1830***Morellia podagrica* (Loew, 1857)**

Material examined. 38 km N Magadan, Sokol village (56th km), ~59°54'N 150°45'E, 24.VIII.1966, 1♀ 1♂, leg. Gorodkov (ZISP); Ust'-Omchug, 61°09'N 149°38'E, 1.VII.1963, 1♂, leg. A. Zhelokhovtsev (ZMUM).

Distribution. Holarctic. In the Palaearctic, from Europe to north China.

Musca* Linnaeus, 1758**Musca domestica* Linnaeus, 1758**

Material examined. Evensk, 61°55'N 159°14'E, 10.IX.1987, 1♂, leg. Gorodkov (ZISP); 20 km S Gizhiga village, “Chaibukha aerodrome”, (~61°50'N 160°32'E), 3.IX.1987, 1♀, leg. Gorodkov (ZISP); Magadan, environs of city, 2 km from the traffic police station towards Solnechnyi village, in pit with chicken droppings and offal, 59°38'N 150°51'E, 13.VII.2017, 1♀, leg. N. Tridrikh (LHMM).

Distribution. Cosmopolitan.

Polietes Rondani, 1866***Polietes domitor* (Harris, 1780)**

Material examined. Koni Peninsula, environs of Cape Ploskyi cordon, valley of Khindzha River, 59°09'N 151°38'E, 7.VII.2017, 1♀, leg. N. Tridrikh (LHMM).

Distribution. Palaearctic, from Europe east to Japan.

***Polietes major* (Ringdahl, 1926)**

Material examined. Stekolnyi village, 60°03'N 150°45'E, 16–18.VII.2014, 2♀ 2♂, leg. N. Vikhrev (ZMUM).

Distribution. Palaearctic, so far known from Sweden and Russia (Altai, Krasnoyarsk and Magadan).

***Polietes nigrolimbatus* (Bonsdorff, 1866)**

Material examined. Stekolnyi village, 60°03'N 150°45'E, 16–18.VII.2014, 6♀, leg. N. Vikhrev (ZMUM).

Distribution. Palaearctic, from Scandinavia to Kamchatka.

***Polietes steinii* (Ringdahl, 1913)**

Material examined. Stekolnyi village, 60°03'N 150°45'E, 16–18.VII.2014, 2♀ 5♂, leg. N. Vikhrev (ZMUM).

Distribution. Palaearctic, from Europe to Far East; mostly on horse dung.

Stomoxyini

***Stomoxys* Geoffroy, 1762**

***Stomoxys calcitrans* (Linnaeus, 1758)**

Material examined. Magadan, environs of city, 2 km from the traffic police station towards Solnechnyi village, in pit with chicken droppings and offal, 59°38'N 150°51'E, 13.VII.2017, 1♀, leg. N. Tridrikh (LHMM).

Distribution. Cosmopolitan.

Phaoniinae

Phaoniini

***Lophosceles* Ringdahl, 1922**

***Lophoscelis frenatus* (Holmgren, 1872)**

Material examined. Environs of Sokol village, 59°54'N 150°45'E, 11–19.VII.2014, 1♀, leg. N. Vikhrev (ZMUM); Koni Peninsula, environs of Cape Ploskyi cordon, valley of Khindzha River, 59°09'N 151°38'E, 29.VI.2016, 1♀, leg. N. Tridrikh (LHMM).

Distribution. Holarctic.

***Helina* Robineau-Desvoidy, 1830**

***Helina annosa* (Zetterstedt, 1838)**

Material examined. N Magadan, environs of Sokol village (56th km), 59°54'N 150°45'E, bank of Uptar River, 25.VIII.1966, 1♂, leg. Gorodkov (ZISP).

Distribution. Holarctic region, and extending into northern parts of the Oriental region.

***Helina cothurnata* (Rondani, 1866)**

Material examined. Koni Peninsula, environs of Cape Ploskyi cordon, valley of Khindzha River, 59°09'N 151°38'E, 29.VI.2016, 1♀, leg. N. Tridrikh (LHMM), 1, 3.VII.2016, 4♀, leg. N. Tridrikh (2♀ in SZNM, 2♀ in LHMM), Cape Ploskyi cordon, coast, 59°09'N 151°38'E, 6.VII.2017, 1♀, leg. N. Tridrikh.

Distribution. Palaearctic, from Europe to China and the Russian Far East.

***Helina evecta* (Harris, 1780)**

Material examined. Koni Peninsula, environs of Cape Ploskyi cordon, 59°09'N 151°38'E, in yellow plate traps, 11.VII.2015, 1♂, leg. N. Tridrikh (LHMM); birch copse on a slope, 22.VIII.2017, 2♀ 1♂, leg. N. Tridrikh (LHMM), 2, 3.VII.2017, 1♂, leg. V. Sorokina; valley of Khindzha River, 5.VII.2017, 1♂, leg. V. Sorokina; Koni Peninsula, environs of Cape Skalistyi cordon, valley of Skalistaya River, in yellow plate traps, 59°07'N 151°23'E, 23.VIII.2017, 2♀ 1♂, leg. N. Tridrikh (LHMM).

Distribution. Holarctic, and parts of the Afrotropical (Sokotra, Yemen), Oriental (Pakistan, India, Sri Lanka) and Neotropical (Mexico, Venezuela) regions.

***Helina flavisquama* (Zetterstedt, 1849)**

Material examined. Koni Peninsula, Cape Ploskyi cordon, 59°09'N 151°38'E, in light trap, 16.VII.2015, 1♂, leg. N. Tridrikh (SZNM); environs of Cape Ploskyi cordon, valley of Khindzha River, birch copse on a slope, 59°09'N 151°38'E, 22.VIII.2017, 2♀, leg. N. Tridrikh (LHMM).

Distribution. Holarctic region. In the Palaearctic from montane and northern Europe east to the Russian Far East.

***Helina fulvisquama* (Zetterstedt, 1849)**

Material examined. Ust'-Omchug, 61°09'N 149°38'E, 30.VI.1971, 1♂, leg. Gorodkov, larch forest, 1.VII.1971, 1♀, leg. Gorodkov (ZISP).

Distribution. Holarctic region. In the Palaearctic from montane and northern Europe east to the Russian Far East.

***Helina laxifrons* (Zetterstedt, 1860)**

Material examined. 38 km N Magadan, Sokol village (56th km), 59°54'N 150°45'E, near the garbage dump, larch forest, 27.VI.1971, 1♂, leg. Gorodkov (in SZNM); Ust'-Omchug, 61°09'N 149°38'E, on *Chosenia arbutifolia*, 30.VI.1971, 2♂, leg. Gorodkov (ZISP).

Distribution. Holarctic region. In the Palaearctic from Europe east to the Russian Far East.

***Helina longicornis* (Zetterstedt, 1838)**

Material examined. Ust'-Omchug, 61°09'N 149°38'E, larch forest, 1.VII.1971, 1♂, leg. Gorodkov (ZISP).

Distribution. Holarctic region. In the Palaearctic from northern Europe to the Russian Far East.

***Helina luteisquama* (Zetterstedt, 1845)**

Material examined. Koni Peninsula, Cape Ploskyi cordon, 59°09'N 151°38'E, in light trap, 16.VII.2015, 1♀, leg. N. Tridrikh.

Distribution. Holarctic region. In the Palaearctic from Norway, Sweden, Finland and Russia (north-west European Russia, Siberia and Far East).

***Helina obscurata* (Meigen, 1826)**

Material examined. 38 km N Magadan, Sokol village (56th km), 59°54'N 150°45'E, bank of Uptar River, 25.VIII.1966, 1♂, leg. Gorodkov (ZISP); Koni Peninsula, Cape Ploskyi cordon, 59°09'N 151°38'E, 30.VI.2017, 1♀, leg. V. Sorokina.

Distribution. Holarctic region. In the Palaearctic from Europe east to Japan.

***Helina reversio* (Harris, 1780)**

Material examined. Magadan, environs of city, 2 km from the traffic police station towards Solnechnyi village, in pit with chicken droppings and offal, 59°38'N 150°51'E, 12, 13.VII.2017, 4♀ 4♂, leg. N. Tridrikh, V. Sorokina (2♀ 1♂ in LHMM, rest in SZNM).

Distribution. Holarctic region, and Taiwan. In the Palaearctic abundant from Europe to Japan.

***Helina subvittata* (Séguy, 1923)**

Material examined. Koni Peninsula, environs of Cape Ploskyi cordon, valley of Khindzha River, 59°09'N 151°38'E, 4.VIII.2017, 1♀, leg. N. Tridrikh (LHMM).

Distribution. Holarctic region. In the Palaearctic from montane and northern Europe east to Japan.

Phaonia Robineau-Desvoidy, 1830

***Phaonia apicalis* Stein, 1914**

Material examined. 1 km up the Chelomdzha River, confluence of the Kava and Chelomdzha Rivers, 60°15'N 147°20'E, 2–3.VIII.2017, 2♀, leg. N. Tridrikh (SZNM); Koni Peninsula, environs of Cape Ploskyi cordon, valley of Khindzha River, 59°09'N 151°38'E, 1.VII.2017, 1♀, leg. N. Tridrikh (LHMM).

Distribution. Holarctic region. In the Palaearctic from Europe east to the Russian Far East.

***Phaonia consobrina* (Zetterstedt, 1838)**

Material examined. Koni Peninsula, Cape Ploskyi cordon, 59°09'N 151°38'E, 4,6.VII.2017, 1♂, leg. V. Sorokina.

Distribution. Holarctic region. In the Palaearctic from montane and northern Europe east to the Russian Far East.

***Phaonia errans* (Meigen, 1826)**

Material examined. 69 km N Magadan, valley of Yagodniki stream, 438 m, 60°10'N 151°04'E, 10.VII.2017, 1♀, leg. V. Sorokina; 1 km up the Chelomdzha River from its confluence with the Kava River, 60°15'N 147°20'E, 4.VIII.2017, 1♀, leg. N. Tridrikh (LHMM).

Distribution. Holarctic region. In the Palaearctic from Europe east to China and the Russian Far East.

***Phaonia hybrida* (Schnabl, 1888)**

Material examined. 38 km N Magadan, Sokol village (56th km), 59°54'N 150°45'E, larch forest, near garbage dump, 27.VII.1971, 1♀ 1♂, leg. Gorodkov; Ust'-Omchug, 61°09'N 149°38'E, 29.VI.1971, 1♂, larch forest, 1.VII.1971, 2♀ 1♂, leg. Gorodkov; 120 km N Magadan, 29.VI.1971, 1♂, leg. Gorodkov (all in ZISP); Magadan, environs of city, 120 m, 59°31'N 150°48'E, 12.VII.2017, 6♀ 3♂, leg. V. Sorokina, N. Tridrikh (3♀ 1♂ in LHMM, rest in SZNM); motorway R-504, 132 km NE Magadan, valley of Setes'mi River, 848 m, 60°40'N 151°41'E, 11.VII.2017, 1♀, leg. N. Tridrikh (LHMM); 13 km NW Magadan, 605 m, 59°40'N 150°37'E, 28.VI.2017, 1♀ 4♂, leg. V. Sorokina; 24 km N Magadan, 177 m, 59°44'N 150°56'E, 29.VI.2017, 1♂, leg. V. Sorokina; Koni Peninsula, environs of Cape Ploskyi cordon, valley of Khindzha River, 59°09'N 151°38'E, 6.VII.2017, 1♀, leg. N. Tridrikh (LHMM), Cape Ploskyi cordon, 2–6.VII.2017, 6♀ 7♂, leg. V. Sorokina.

Distribution. Holarctic region. In the Palaearctic from montane and northern Europe to China and the Russian Far East.

***Phaonia lugubris* (Meigen, 1826)**

Material examined. Motorway R-504, 132 km NE Magadan, valley of Setes'mi River, 848 m, 60°40'N 151°41'E, 11.VII.2017, 2♂, leg. N. Tridrikh; motorway R-504, Yablonevyy Pass, 120 km NNE Magadan, 783 m, valley of Ola River, 60°35'N 151°32'E, 11.VII.2017, 1♀, leg. N. Tridrikh (all in LHMM); 139 km NE Magadan, valley of Attykhan River, 809 m, 60°43'N 151°45'E, 11.VII.2017, 1♀, leg. V. Sorokina.

Distribution. Holarctic region. In the Palaearctic from montane and northern Europe to the Russian Far East.

***Phaonia meigeni* Pont, 1986**

Material examined. Yablonevyy Pass, 120 km NNE Magadan, 783 m, valley of Ola River, 60°35'N 151°32'E, 11.VII.2017, 1♀, leg. N. Tridrikh (LHMM); 13 km NW Magadan, 605 m, 59°40'N 150°37'E, 28.VI.2017, 2♀ 1♂, leg. V. Sorokina; Koni Peninsula, environs of Cape Ploskyi cordon, 59°09'N 151°38'E, 23.VII.2017, 2♂, leg. V. Sorokina.

Distribution. Palaearctic region, from Europe east to the Russian Far East.

***Phaonia serva* (Meigen, 1826)**

Material examined. Motorway R-504, 132 km NE Magadan, valley of Setes'mi River, 848 m, 60°40'N 151°41'E, 11.VII.2017, 2♀ 1♂, leg. N. Tridrikh; 53 km N Magadan, valley of Krasavitsa River, 247 m, 60°02'N 150°45'E, 10.VII.2017, 1♀, leg. N. Tridrikh (all in LHMM); 24 km N Magadan, 177 m, 59°44'N 150°56'E, 29.VI.2017, 1♀, leg. V. Sorokina; Koni Peninsula, environs of Cape Ploskyi cordon, 59°09'N 151°38'E, 5.VII.2017, 1♂, leg. V. Sorokina.

Distribution. Holarctic region. In the Palaearctic from Europe east to Japan.

Mydaeinae

***Graphomya* Robineau-Desvoidy, 1830**

***Graphomya maculata* (Scopoli, 1763)**

Material examined. Motorway R-504, Yablonevyy Pass, 120 km NNE Magadan, 783 m, valley of Ola River, 60°35'N 151°32'E, 11.VII.2017, 1♂, leg. N. Tridrikh (LHMM).

Distribution. Palaearctic (from Europe east to Japan), Oriental, Australasian, Afrotropical and Neotropical Regions.

***Hebecnema* Schnabl, 1889**

***Hebecnema umbratica* (Meigen, 1826)**

Material examined. Magadan, environs of city, 2 km from the traffic police station towards Solnechnyy village, in pit with chicken droppings and offal, 59°38'N 150°51'E, 18–13.VII.2017, 1♀, leg. N. Tridrikh (LHMM).

Distribution. Holarctic region and northern parts of the Oriental Region (India, Myanmar). In the Palaearctic from Europe east to Japan.

***Hebecnema vespertina* (Fallén, 1823)**

Material examined. Koni Peninsula, environs of Cape Ploskyi cordon, valley of Khindzha River, 59°09'N 151°38'E, 29.VI.2016, 1♂, leg. N. Tridrikh (LHMM).

Distribution. Holarctic region. In the Palaearctic from Europe east to Japan.

***Mydaea* Robineau-Desvoidy, 1830**

***Mydaea affinis* Meade, 1891**

Material examined. Koni Peninsula, Cape Ploskyi cordon, yellow plate traps on the seashore, 59°09'N 151°38'E, 12.VII.2015, 1♀, 23.VII.2017, 1♀, leg. N. Tridrikh; Koni Peninsula, environs of Cape Skalistyy cordon, valley of Skalistaya River, in yellow plate traps, 59°07'N 151°23'E, 23.VII.2017, 1♂, leg. N. Tridrikh; confluence of the Kava and Chelomdzha Rivers, environs of Tsentralnyi cordon, road to the cordon from Talon village, 60°14'N 147°28'E, 4.VII.2017, 1♀, leg. N. Tridrikh.

Distribution. Holarctic region. In the Palaearctic from Europe east to Japan.

***Mydaea ancilla* (Meigen, 1826)**

Material examined. Koni Peninsula, Cape Ploskyi cordon, 59°09'N 151°38'E, 8.VII.2016, 1♂, leg. N. Tridrikh, seashore, 6.VII.2017, 1♀, leg. N. Tridrikh, in carrion trap, 22.VII.2017, 1♀, leg. V. Sorokina.

Distribution. Palaearctic, from Europe east to the Russian Far East.

***Mydaea anicula* (Zetterstedt, 1860)**

Material examined. Environs of Koni Peninsula, Cape Ploskyi cordon, 59°09'N 151°38'E, valley of Khindzha River, birch copse on slope, 22.VIII.2017, 2♀, leg. N. Tridrikh.

Distribution. New record for the Far East. Palaearctic region, from Europe east to the Russian Far East.

***Mydaea humeralis* Robineau-Desvoidy, 1830**

Material examined. Koni Peninsula, Cape Ploskyi cordon, 59°09'N 151°38'E, in light trap, 16.VII.2015, 2♂, leg. N. Tridrikh, environs of Cape Ploskyi cordon, seashore, 59°09'N 151°38'E, 8.VII.2016, 1♀, leg. N. Tridrikh.

Distribution. Palaearctic, from Europe east to Japan.

***Mydaea nebulosa* (Stein, 1893)**

Material examined. 1 km up the Chelomdzha River, confluence of the Kava and Chelomdzha Rivers, 60° 15'N 147°20'E, 4.VIII.2017, 1♀, leg. N. Tridrikh.

Distribution. Palaearctic region, from Europe to the Russian Far East.

***Mydaea palpalis* Stein, 1916**

Material examined. 27th km, environs of Palatka village, (~60°05'N 150°55'E), a meadow by the river, 2.VII.1971, 1♂, Gorodkov.

Distribution. New record for the Far East. Holarctic region. In the Palaearctic from northern Europe to the Russian Far East.

***Mydaea setifemur* Ringdahl, 1924**

Material examined. Confluence of the Kava and Chelomdzha Rivers, environs of Tsentralnyi cordon, road to the cordon from Talon village, 60°14'N 147°28'E, 1–3. VIII.2017, 2♀, leg. N. Tridrikh; 1 km up Chelomdzha River from its confluence with the Kava River, 60°15'N 147°20'E, 4.VIII.2017, 1♀, leg. N. Tridrikh.

Distribution. Palaearctic, from Europe east to Japan.

Myospila Rondani, 1856***Myospila mediatubunda* (Fabricius, 1781)**

Material examined. Evensk, 61°55'N 159°14'E, 7. IX.1987, 1♀, leg. Gorodkov (ZISP).

Distribution. Holarctic region, and extending into parts of the Oriental and Neotropical regions. In the Palaearctic, from Europe east to Japan.

Coenosiinae**Limnophorini*****Limnophora* Robineau-Desvoidy 1830*****Limnophora* sp.**

Material examined. Koni Peninsula, environs of Cape Ploskyi cordon, valley of Khindzha River, 59°09'N 151° 38'E, on stones by the stream, 6,7.VII.2017, 29♀ 35♂, leg. V. Sorokina.

Remarks. These males and females run in the keys by Hennig (1959) and Gregor et al. (2002) to *Limnophora scrupulosa* (Zetterstedt, 1845), which differs by the male terminalia and the colour of the body. The Magadan specimens run in the key to the Chinese species by Xue et al. (2012) to *Limnophora subscrupulosa* Zhang & Xue, 1990, which also differs slightly in the form of the male terminalia. Because it was not possible for us to study European *L. scrupulosa*

and Chinese *L. subscrupulosa* to compare with our Magadan specimens, we have left this species as provisionally undetermined.

Lispe Latreille, 1796***Lispe tentaculata* (De Geer, 1776)**

Lispe tentaculata; Vikhrev 2011: 67.

Material examined. Koni Peninsula, environs of Cape Skalistyi cordon, valley of Skalistaya River, in yellow plate traps, 59°07'N 151°23'E, 23.VIII.2017, 1♂, leg. N. Tridrikh (LHMM); motorway R-504, Yablonevyy Pass, 120 km NNE Magadan, 783 m, 60°35'N 151°32'E, 11. VII.2017, 1♀, leg. V. Sorokina.

Distribution. Holarctic, Neotropical and Oriental regions. In the Palaearctic region, from Europe east to Japan.

Spilogona Schnabl, 1911***Spilogona aenea* Hockett, 1965 ***

Material examined. Environs of Sokol village, 56th km, 59°54'N 150°45'E, valley of a stream, 24.VIII.1966, 1♂, leg. Gorodkov.

Distribution. New record for the Palaearctic. Nearctic: Alaska, Yukon, Northwest Territories, Manitoba, Quebec, Labrador.

***Spilogona arctica* (Zetterstedt, 1838)**

Material examined. Ust'-Omchug, 61°08'N 149°39'E, 29. VI.1971, 2♂, 01.VII.1971, larch woodlands, 4♂, leg. Gorodkov, 01.VIII.1971, bog, 2♀, leg. Gorodkov and Chelnokov; 20 km S Gizhiga village, "Chaibukha aerodrome", (~61°50'N 160°32'E), 2.IX.1987, 1♂; environs of Magadan, Marchekan (~59°32'N 150°47'E), 28.VIII.1969, 1♂, leg. Gorodkov; motorway R-504, Yablonevyy Pass, 120 km NNE Magadan, 900 m, 60° 35'N 151°32'E, 17.VII.2014, 1♀ 1♂, leg. N. Vikhrev (ZMUM).

Distribution. Holarctic region. In the Palaearctic from northern Europe to the Russian Far East.

***Spilogona bifimbriata* (Hockett, 1965) ***

Material examined. Aborigin field station, 500 m, 61° 20'N 149°23'E, 5–10.VIII.1990, 1♂, M. Wood; 30 km W Magadan, Armani Pass, 137 m, 59°41'N 150°20'E, 28. VI.2017, 1♀ 3♂, leg. V. Sorokina; 10 km NW Magadan, 445 m, 59°40'N 150°40'E, 28.VI.2017, 1♀ 7♂, leg. V. Sorokina; Koni Peninsula, environs of Cape Ploskyi cordon, valley of Khindzha River, 59°09'N 151°38'E,

6,7.VII.2017, 1♀ 9♂, leg. V. Sorokina and N. Tridrikh (2♂ in ZMUM); motorway R-504, 132 km NE Magadan, valley of Setes'mi River, 848 m, 60°40'N 151°41'E, 11.VII.2017, 1♀, leg. V. Sorokina; Magadan, environs of city, 120 m, 59°31'N 150°48'E, 12.VII.2017, 1♀ 4♂, leg. V. Sorokina.

Distribution. New record for the Palaearctic. Nearctic: Alaska, Yukon, Northwest Territories, Manitoba, Quebec, British Columbia south to Alta.

Spilogona contractifrons (Zetterstedt, 1838)

Material examined. Ust'-Omchug, 61°08'N 149°39'E, 01.VII.1971, 1♂, leg. Gorodkov; 20 km S Gizhiga village, "Chaibukha aerodrome" (~61°50'N 160°32'E), valley of Chaibukha River, 7 km from mouth of river, 2.IX.1987, 1♀ 1♂, leg. Gorodkov (ZISP); Aborigen field station, 500 m, 61°20'N 149°23'E, 5–10.VIII.1990, 1♀, leg. M. Wood; environs of Sokol village, 59°54'N 150°45'E, 11–19.VII.2014, 3♀ 10♂, leg. N. Vikhrev (1♀ 1♂ in SZNM, rest in ZMUM); 92 km NE Magadan, valley of Donyshko River, 570 m, 60°20'N 151°23'E, 17.VII.2014, 1♂, leg. N. Vikhrev (ZMUM); Koni Peninsula, environs of Cape Ploskyi cordon, valley of Khindzha River, 59°09'N 151°38'E, 29.VI.2016, 1♂, 22.VIII.2017, birch copse on the slope, 2♀, leg. N. Tridrikh; Koni Peninsula, Cape Skalistyi, valley of Skalistaya River, 59°07'N 151°23'E, in yellow plate traps, 23.VIII.2017, 1♀, leg. N. Tridrikh.

Distribution. Holarctic region. In the Palaearctic from montane and northern Europe east to Japan.

Spilogona depressula (Zetterstedt, 1845)

Material examined. Environs of Sokol village, 59°55'N 150°43'E, 11–19.VII.2014, 1♂, leg. N. Vikhrev (ZMUM).

Distribution. New record for the Far East. Palaearctic region, from northern Europe east to the Russian Far East.

Spilogona flavinervis Hockett, 1965

Material examined. Ust'-Omchug, 61°08'N 149°39'E, larch forest, 01.VII.1971, 1♀, leg. Gorodkov (ZISP).

Distribution. Holarctic region. In the Palaearctic only from Russia (West Siberia and the Russian Far East).

Spilogona fulvibasis Hockett, 1965 *

Material examined. Aborigen field station, 500 m, 61°20'N 149°23'E, 26–30.VII.1990, 2♀ 1♂, leg. M. Wood;

Magadan, environs of city, foot of Marchekan hills, on stones by the stream, 120 m, 59°31'N 150°48'E, 12.VII.2017, 1♀, leg. V. Sorokina; environs of Sokol village, 59°55'N 150°43'E, 11–19.VII.2014, 2♀, leg. N. Vikhrev (ZMUM).

Distribution. New record for the Palaearctic. Nearctic: Alaska.

Spilogona genualis Hockett, 1965

Material examined. Ust'-Omchug, 61°08'N 149°39'E, valley of Detrin River, 30.VI.1971, 1♂, leg. Gorodkov (ZISP); environs of Sokol village, 59°55'N 150°43'E, 11–19.VII.2014, 1♀ 2♂, leg. N. Vikhrev (ZMUM); 1 km up the Chelomdzha River from its confluence with the Kava River, 60°15'N 147°20'E, 4.VIII.2017, 1♀, leg. N. Tridrikh.

Distribution. New record for the Far East. Palaearctic: northern Russia. Nearctic: Alaska, Northwest Territories, Manitoba, Quebec.

Spilogona improvisa Sorokina, 2018

Material examined. Paratypes of this recently described species were from Yablonevyy Pass, 900 m, 60°35'N 151°32'E, 17.VII.2014, 1♀, leg. N. Vikhrev (ZMUM); environs of Sokol, 59°54'N 150°45'E, 11–19.VII.2014, 1♂, leg. N. Vikhrev (ZMUM); 120 km Northern Magadan [~60°38'N 151°24'E], 2.VII.1971, 1♀, leg. Gorodkov (ZISP).

Distribution. Palaearctic: Russia (Altai Mts, Magadan region).

Spilogona incerta Hockett, 1965 *

Material examined. Environs of Sokol village, 59°55'N 150°43'E, 11–19.VII.2014, 1♂, leg. N. Vikhrev; environs of Palatka village, 60°05'N 150°56'E, 17.VII.2014, 1♀, leg. N. Vikhrev (ZMUM); 53 km N Magadan, valley of Krasavitsa River, 247 m, 60°02'N 150°45'E, 10.VII.2017, 1♂, leg. V. Sorokina; Magadan, environs of city, foot of Marchekan hills, on stones by the stream, 120 m, 59°31'N 150°48'E, 12.VII.2017, 2♀, leg. V. Sorokina; Koni Peninsula, environs of Cape Ploskyi cordon, valley of Khindzha River, 59°09'N 151°38'E, on stones by the river, 7.VII.2017, 1♀ 2♂, leg. V. Sorokina, N. Tridrikh; Koni Peninsula, environs of Cape Ploskyi cordon, valley of Khindzha River, 1–3.VII.2017, 3♀ 1♂, 18.VIII.2017, 1♀, leg. N. Tridrikh; 92 km NE Magadan, valley of Donyshko River, 570 m, 60°20'N 151°23'E, 10.VII.2017, 1♀, leg. N. Tridrikh.

Distribution. New record for the Palaearctic. Nearctic: Alaska.

***Spilogona lapponica* (Ringdahl, 1932)**

Material examined. Environs of Sokol village, 59°55'N 150°43'E, 11–19.VII.2014, 1♂, leg. N. Vikhrev (ZMUM).

Distribution. New record for the Far East. Palaearctic region: Norway, northern Russia, Sweden.

***Spilogona micans* (Ringdahl, 1918)**

Material examined. 30 km W Magadan, 137 m, 59°41'N 150°20'E, 28.VI.2017, 2♂, leg. V. Sorokina.

Distribution. Holarctic region. In the Palaearctic from montane and northern Europe east to the Russian Far East.

***Spilogona monacantha* (Collin, 1930)**

Material examined. Aborigen field station, 500 m, 61° 20'N 149°23'E, 26–30.VII.1990, 1♂, leg. M. Wood.

Distribution. Holarctic region. In the Palaearctic only from Russia (Siberia and Far East).

***Spilogona pacifica* (Meigen, 1826)**

Material examined. Ust'-Omchug, 61°08'N 149°39'E, the copse with *Chosenia arbutifolia*, 30.VI.1971, 1♂, leg. Gorodkov (ZISP); Aborigen field station, 500 m, 61°20'N 149°23'E, 5–10.VII.1990, 1♂, leg. M. Wood; environs of Sokol village, 59°55'N 150°43'E, 11–19.VII.2014, 1♂ 1♀, leg. N. Vikhrev (ZMUM).

Distribution. New record for the Far East. Holarctic region. In the Palaearctic from Europe east to China and the Russian Far East.

***Spilogona placida* (Huckett, 1932)**

Material examined. Aborigen field station, 500 m, 61° 20'N 149°23'E, 5–10.VIII.1990, 2♂, leg. M. Wood; Koni Peninsula, environs of Cape Ploskyi cordon, valley of Khindzha River, on the rocks by the river, 59°09'N 151° 38'E, 6.VII.2017, 2♀ 7♂, leg. V. Sorokina (1♀ 2♂ in ZMUM, rest in SZNM); Magadan, environs of city, foot of Marchekan hills, 120 m, 59°31'N 150°48'E, 12.VII.2017, 6♂, leg. V. Sorokina; 92 km NE Magadan, valley of Donyshko River, 570 m, 60°20'N 151°23'E, 10.VII.2017, 2♀ 5♂, leg. V. Sorokina; 69 km N Magadan, valley of Yagodniki stream, 438 m, 60°10'N 151°04'E, 10.VII.2017, 1♀ 10♂, leg. V. Sorokina; 139 km NE Magadan, valley of Attykhan River, 809 m, 60°43'N 151°45'E, 11.VII.2017, 1♀ 9♂, leg. V. Sorokina; motorway R-504, 132 km NE Magadan, valley of Setes'mi River, 848 m, 60°40'N 151° 41'E, 11.VII.2017, 1♀ 4♂, leg. V. Sorokina; motorway

R-504, Yablonevyy Pass, 120 km NNE Magadan, 783 m, upper reaches of Ola River, on rocks by river, 60°35'N 151° 32'E, 11.VII.2017, 3♀ 3♂, leg. V. Sorokina.

Distribution. New record for the Far East. Holarctic region. In the Palaearctic only from Sweden and Russia (West Siberia and Far East).

***Spilogona pseudodispar* (Frey, 1915)**

Material examined. Aborigen field station, 1700 m, 61° 20'N 149°23'E, 3.VIII.1990, 2♀, leg. M. Wood.

Distribution. Holarctic region. In the Palaearctic from North Scandinavia to the Russian Far East.

***Spilogona quinquelineata* (Zetterstedt, 1838)**

Material examined. Ust'-Omchug, 61°08'N 149°39'E, larch forest, 01.VII.1971, 1♀, Chelnokov (ZISP), bog, 01.VIII.1971, 3♂, leg. Gorodkov and Chelnokov (1♂ in SZNM, 2♂ in ZISP), from *Eriophorum* sp., 01.VII.1971, 1♂, leg. Gorodkov (in SZNM); Aborigen field station, 500 m, 61° 20'N 149°23'E, 26–30.VII.1990, 1♀, leg. M. Wood.

Distribution. New record for the Far East. Holarctic region. In the Palaearctic only from North Europe and the Russian Far East.

***Spilogona semiglobosa* (Ringdahl, 1916)**

Material examined. Aborigen field station, 500 m, 61° 20'N 149°23'E, 26–30.VII.1990, 1♀, leg. M. Wood; Stekolnyi village, 60°03'N 150°45'E, 16–18.VII.2014, 1♀, leg. N. Vikhrev (ZMUM); motorway R-504, 132 km NE Magadan, valley of Setes'mi River, 848 m, 60°40'N 151°41'E, 11.VII.2017, 2♂ (1♂ в ZMUM), leg. V. Sorokina; 92 km NE Magadan, valley of Donyshko River, 570 m, 60°20'N 151°23'E, 10.VII.2017, 1♂, leg. V. Sorokina; motorway R-504, Yablonevyy Pass, 120 km NNE Magadan, 783 m, upper reaches of Ola River, 60° 35'N 151°32'E, 11.VII.2017, 1♂, leg. N. Tridrikh; Koni Peninsula, Cape Ploskyi cordon, 59°09'N 151°38'E, 06.VII.201, 1♀, leg. N. Tridrikh.

Distribution. New record for the Far East. Holarctic region. In the Palaearctic from northern Scandinavia, north Russia and China.

***Spilogona separata* Huckett, 1965 ***

Material examined. 1 km up the Chelomdzha River from its confluence with the Kava River, 60°15'N 147°20'E, 4.VIII.2017, 1♂, leg. N. Tridrikh.

Distribution. New record for the Palearctic. Nearctic: Northwest Territories.

***Spilogona tendipes* (Malloch, 1920)**

Material examined. Motorway R-504, Yablonevyi Pass, 120 km NNE Magadan, 783 m, upper reaches of Ola River, on the rocks by river, 60°35'N 151°32'E, 17. VII.2014, 4♀ 1♂, leg. N. Vikhrev (1♀ in SZNM), 11. VII.2017, 1♀, leg. V. Sorokina.

Distribution. Palearctic: Greenland (NE), Russia (Altai Mts and Far East). Nearctic: Alaska, Northwest Territories.

Spilogona trigonifera* (Zetterstedt, 1838) *

Material examined. Koni Peninsula, Cape Ploskyi cordon, 59°09'N 151°38'E, alpine meadow, 20. VIII.2017, 1♂, in light trap, 21.VIII.2017, 1♀, leg. N. Tridrikh.

Distribution. New record for Russia. Holarctic region. In the Palearctic only from Greenland and Russia (Far East).

Coenosiini

***Coenosia* Meigen, 1826**

***Coenosia alaskensis* Hockett, 1965 (Figures 2, 4, 5)**

Coenosia (*Hoplogaster*) *alaskensis* Hockett 1965: 170 (key). Type locality: "Carlo, Alaska, 7.9.21 [i.e. 9.vii] (J.M. Aldrich)".

Coenosia shumshuensis Shinonaga & Zhang in Shinonaga et al. 2000: 218, n. syn. Type locality: "NKS-1: male, 22. VII.1997, RBK leg." [Japan, North Kuril Islands, Shumshu Island, Lake Bol'shoye (50°46'N, 156°15'E), alt. 15 m, collector R.B. Kuranishi]

Material examined. 120 km N Magadan, 2.VII.1971, 1♂ 1♀, leg. Gorodkov (ZISP); confluence of the Kava and Chelomdzha Rivers, environs of Tsentralnyi cordon, road to the cordon from Talon village, 60°14'N 147°28'E, 2. VIII.2017, 1♀, leg. N. Tridrikh; Magadan, environs of city, foot of Marchekan hills, valley of small stream, 120 m, 59°31'N 150°48'E, 12.VII.2017, 1♂, leg. N. Tridrikh; environs of Cape Ploskyi cordon, valley of Khindzha River, 59°09'N 151°38'E, 6.VII.2017, 2♀ 2♂, leg. V. Sorokina.

Distribution. Palearctic: Russia (Far East), Japan. Nearctic: Alaska, Yukon, Northwest Territories.



Figures 2–3. *Coenosia* spp., male lateral habitus. 2, *C. alaskensis* Hockett, 1965. 3, *C. octopunctata* (Zetterstedt, 1838). Scale bars: 1 mm.

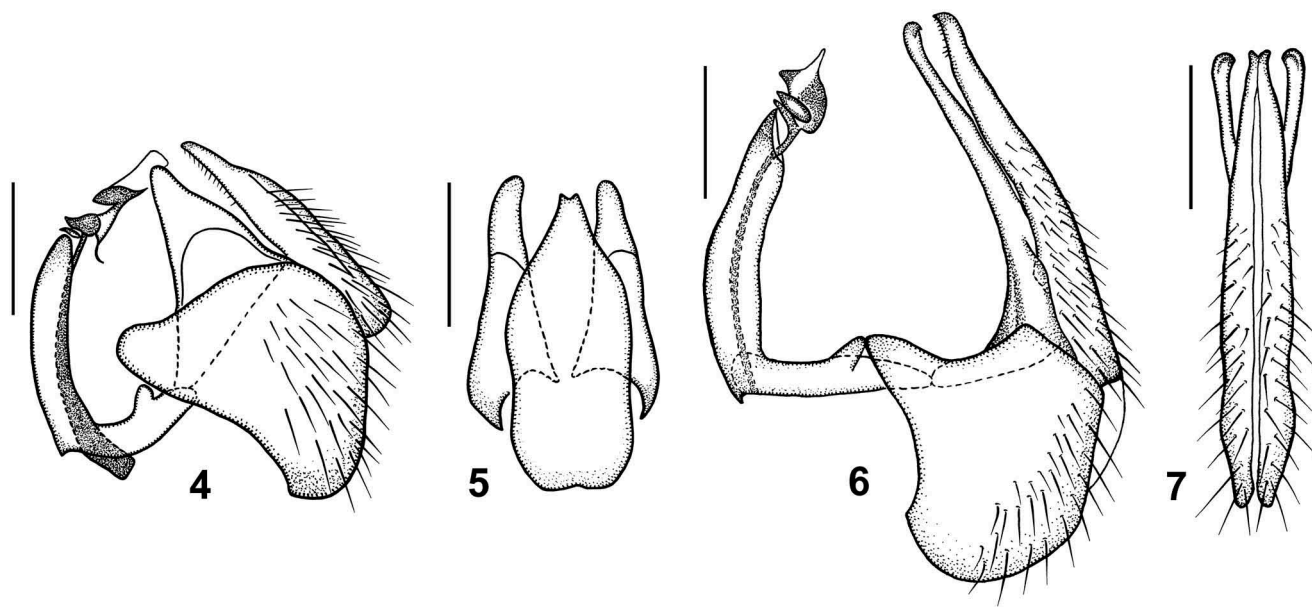
Notes. Shinonaga & Zhang (2000) described *Coenosia shumshuensis* from specimens from North Kuril Islands, Shumshu Island. The type series included both males and females but only the male was described (Shinonaga et al. 2000, p. 218). The colour habitus picture (Shinonaga et al. 2000, p. 221) and the figure of the male terminalia (Shinonaga et al. 2000, p. 215) go with the description of this species. Recently, the first author (VSS) examined material of *Coenosia alaskensis* from Alaska and Aklavik (Northwest Territories, Canada) identified by Hockett (in the Canadian National Collection). Additional material of this species was collected by all authors of the present paper in the Magadan region. All specimens from the Magadan region, Alaska and Canada corresponded well with the description of *Coenosia alaskensis* Hockett, 1965 as well as with the description and the figure of the male terminalia and the habitus picture of the type of *C. shumshuensis* Shinonaga & Zhang, 2000. We therefore conclude that *C. shumshuensis* Shinonaga & Zhang, 2000 is a new junior synonym of *C. alaskensis* Hockett, 1965.

Coenosia alaskensis Hockett, 1965 can be included in the *apukaensis* species group (Sorokina 2014) because of a strong posteroventral seta on the hind tibia and the structure of the male terminalia, namely broad gonostylus and epandrium with an apical process. However, this species differs from other species of the *apukaensis* species group by a small lower calypter which is only as long as the upper one.

Coenosia alaskensis Hockett, 1965 is very similar to *C. octopunctata* (Zetterstedt, 1838) (Figures 3, 6, 7) because of the small lower calypter and the colour of

the legs and abdomen, but can be separated from it by the absence of a well-developed posterodorsal seta on the hind tibia, the male terminalia and the male sternite 5. This species should be incorporated into the recent key to Siberian *Coenosia* (Sorokina 2009, p. 4) as follows:

12. At least apical half or third of hind femur black 12a
 - All femora completely yellow; only one pair of presutural dorsocentrals 13
- 12a Hind tibia with a well-developed posterodorsal seta. Larger size: 5.0–6.8 mm *C. alaskensis* Hockett
 - Hind tibia without posterodorsal seta, or sometimes with a weak and short seta. Smaller size: 3.0–5.5 mm 12b
- 12b Scutum with two distinct brown narrow longitudinal vittae along dorsocentral setae, without brown dust; mid and hind femora yellow on basal 2/3, all tibiae yellow; cheek not higher than width of postpedicel *C. octopunctata* (Zetterstedt)
 - Scutum with three distinct brown narrow longitudinal vittae along dorsocentral and acrostichal setae, with brown dust between dorsocentral setae; mid and hind femora yellow on basal 1/3, all tibiae darkened; cheek higher than width of postpedicel *C. wrangelensis* Sorokina
- 13 as in Sorokina (2009).



Figures 4–7. *Coenosia* spp. 4–5, *C. alaskensis* Hockett, 1965: 4, male terminalia, lateral view; 5, cercal plate, dorsal view. 6–7, *C. octopunctata* (Zetterstedt, 1838): 6, male terminalia, lateral view; 7, cercal plate, dorsal view. Scale bars: 0.25 mm.

***Coenosia baicalensis* (Schnabl, 1926)**

Material examined. Ust'-Omchug, 61°09'N 149°38'E, a bog with *Eriophorum* sp., 1.VIII.1971, 4♀ 4♂, leg. Gorodkov (2♀ 2♂ in ZISP, 2♀ 2♂ in SZNM); environs of Sokol village, 59°54'N 150°45'E, 11–19.VII.2014, 4♂, leg. N. Vikhrev (ZMUM).

Distribution. East Palaearctic: Russia (Siberia, Far East).

***Coenosia ciliata* Hennig, 1961 (Figure 8)**

Coenosia ciliata Hennig 1961: 526 (key) and 547. Type locality: "Schugui, lew. b. Tschikoja, Zabaik.; Michno leg. 20.VII.25" [Russia, East Siberia, Zabayskys Krai, Republic of Buryatia, left bank of Chikoy River, ~ 50°55'N 106°37'E]. [seen].

Coenosia ciliata; Sorokina 2009: 4.

Coenosia (*Hoplogaster*) *remissa* Hockett 1965: 169 & 170 (key), and 176, **n. syn.** Type locality: "Big Delta, Alaska, 7.14.51 [i.e. 14.vii]" [USA, Alaska; collector J.R. McGillis].

Material examined. Environs of Sokol village, 59°54'N 150°45'E, 11–19.VII.2014, 10♀ 33♂, leg. N. Vikhrev (2♂ in SZNM, rest ZMUM).

Distribution. East Palaearctic: Russia (Siberia, Far East). Nearctic: Alaska, Yukon.

Notes. Hennig (1961) described *Coenosia ciliata* from specimens from the Republic of Buryatia, Russia. The type series included two males. This unusual species is distinguished from other *Coenosia* species by the absence of the basal pair of scutellar setae. The species can also be distinguished by the very short lower

calypter, long postpedicel, reddish base of antenna, yellow palpus, one proepisternal seta, long yellow legs with dark tarsi, mid femur without preapical anterior seta, hind femur with elongate weak setae and hairs on basal half of posterior and posteroventral surface, and elongate abdomen with large marks on tergites. *Coenosia ciliata* had been known only from the type series. Subsequently, Hockett (1965) described two species without a basal pair of scutellar setae: *C. (Hoplogaster) remissa* from Alaska and Yukon, and *C. (Hoplogaster) setipes* from Manitoba. The latter species was described from a single male. Hockett suggested that "the Manitoba specimen of *setipes* might be considered a variant of *remissa*, or vice versa". However, in his opinion they are distinct species because of differences in general habitus and chaetotaxy of hind legs (Hockett 1965, pp. 169, 177). Recently many males and females of a *Coenosia* species without a basal pair of scutellar setae were collected in the Magadan region. These specimens corresponded well with the description and the figure of the male terminalia of Hennig's *Coenosia ciliata* as well as with the description of the Hockett's *Coenosia (Hoplogaster) remissa*. We therefore conclude that *C. (Hoplogaster) remissa* Hockett, 1965 is a new junior synonym of *C. ciliata* Hennig, 1961.

As regards *C. (Hoplogaster) setipes* Hockett, 1965, we need more material from Manitoba before forming a conclusion about its status. Probably it is also a junior synonym of *C. ciliata*.

***Coenosia demoralis* (Hockett, 1965)**

Coenosia demoralis; Vikhrev & Sorokina 2017: 247.

Material examined. Ust'-Omchug, 61°08'N 149°39'E, a copse with *Chosenia arbutifolia*, 30.VI.1971, 1♀ 1♂, leg. Gorodkov (ZISP); confluence of the Kava and Chelomdza Rivers, environs of Tsentralnyi cordon, road to the cordon from Talon village, 60°14'N 147°28'E, 3.VIII.2017, 2♀, leg. N. Tridrikh; 30 km W Magadan, Armani Pass, 137 m, 59°41'N 150°20'E, 28.VI.2017, 1♀, leg. V. Sorokina; Koni Peninsula, Cape Ploskyi cordon, 59°09'N 151°38'E, 30.VI.2017, 1♂, leg. V. Sorokina; environs of Cape Ploskyi cordon, valley of Khindzha River, 6.VII.2017, 1♂, leg. V. Sorokina.

Distribution. East Palaearctic: Russia (Altai Mts, Magadan region). Nearctic: Canada (Yukon Territory; Churchill, Manitoba; Quebec).

***Coenosia lineatipes* (Zetterstedt, 1845)**

Material examined. Ust'-Omchug, copse with *Chosenia arbutifolia*, 61°08'N 149°39'E, 30.VI.1971, 2♀ 2♂, leg.



Figure 8. *Coenosia ciliata* Hennig, 1961, male holotype, lateral habitus (photo: Igor Shamshev). Scale bar: 1 mm.

Gorodkov (1♀ 1♂ in SZNM, rest in ZISP); Magadan, environs of city, 2 km from the traffic police station towards Solnechnyi village, in pit with chicken droppings and offal, 59°38'N 150°51'E, 12.VII.2017, 1♀, leg. V. Sorokina.

Distribution. New record for the Far East. Palaearctic: Europe, Russia (Nenets Autonomous Okrug, Altai Mountains, Magadan region).

Coenosia luteipes Ringdahl, 1930

Material examined. Environs of Palatka village (~60° 05'N 150°55'E), 27th km, a meadow by the river, 2. VII.1971, 1♂, leg. Gorodkov; Ust'-Omchug, 61°09'N 149°38'E, larch forest, 29.VI.1971 and 01.VII.1971, 2♀, leg. Gorodkov (ZISP); confluence of the Kava and Chelomdzha Rivers, environs of Tsentralnyi cordon, road to the cordon from Talon village, 60°14'N 147° 28'E, 1–3.VIII.2017, 10♀, leg. N. Tridrikh; environs of Sokol village, 59°54'N 150°45'E, 11–19.VII.2014, 1♀ 3♂, leg. N. Vikhrev (ZMUM).

Distribution. East Palaearctic: Russia (East Siberia, Far East) and China.

Coenosia mollicula japonica Hennig, 1961

Material examined. Environs of Sokol village, 59°54'N 150°45'E, 11–19.VII.2014, 3♂, leg. N. Vikhrev; Yablonevyy Pass, 120 km NNE Magadan, 783 m, upper reaches of Ola River, on rocks by the river, 60° 35'N 151°32'E, 17.VII.2014, 1♂, leg. N. Vikhrev (ZMUM).

Distribution. East Palaearctic: Russian Far East and Japan.

Coenosia verralli Collin, 1953

Material examined. 75 km NW Palatka village, Mukulchak River (tributary of Igandya), ~ 60°41'N 150° 13'E [original label: Bassein r. Amga, r. Mukulchak (pritok Iganzhy), 102 km ot Palatki], larch forest, 2. VII.1971, 1♂, leg. Gorodkov (ZISP).

Distribution. Holarctic region. In the Palaearctic from Europe east to China and the Russian Far East.

Coenosia xuei Cui & Li, 1996

Coenosia xuei; Sorokina 2014: 635.

Distribution. Palaearctic: China (Jilin) and Russia (Far East).

Lispocephala Pokorny, 1893

Lispocephala erythrocerata (Robineau-Desvoidy, 1830)

Material examined. Ust'-Omchug, 61°09'N 149°38'E, larch woodlands, 1.VII.1971, 4♀ 1♂, leg. Chelnokov, a bog with *Eriophorum* sp., 1.VIII.1971, 3♀ 4♂, leg. Gorodkov; 38 km N Magadan, Sokol village (56th km), 59°54'N 150°45'E, bank of Uptar River, 25.VIII.1966, 1♂, leg. Gorodkov; 20 km S Gizhiga village, "Chaibukha aerodrome", (~61°50'N 160°32'E), 31. VIII.1987, 2♂, leg. Gorodkov; Evensk, 61°55'N 159° 14'E, valley of B. Garmanda River, 9.IX.1987, 1♂, leg. Gorodkov (all in ZISP); confluence of the Kava and Chelomdzha Rivers, environs of Tsentralnyi cordon, road to the cordon from Talon village, 60°14'N 147°28'E, 1. VIII.2017, 1♀, leg. N. Tridrikh (LHMM).

Distribution. Holarctic region. In the Palaearctic from Europe east to Japan.

Pseudocoenosia Stein, 1916

Pseudocoenosia solitaria (Zetterstedt, 1838)

Material examined. Confluence of the Kava and Chelomdzha Rivers, environs of Tsentralnyi cordon, road to the cordon from Talon village, 60°14'N 147°28'E, 4. VIII.2017, 1♀, leg. N. Tridrikh (LHMM).

Distribution. Holarctic region. In the Palaearctic from Europe east to China and the Russian Far East.

Discussion

Despite the preliminary nature of this work, a rather large number of muscid species have been identified for the Magadan region (93 species belonging to 23 genera). Of course, this is not the final result and the number of species will be significantly increased, especially as more material of the species-rich genus *Spilogona* is collected. Representatives of this genus prefer rather harsh living conditions, and their maximum species diversity has already been observed to be in montane areas and in arctic tundra (Sorokina & Khruleva 2012; Sorokina 2013a, 2013b). It is not surprising that the muscid fauna of the Magadan region is dominated by the genus *Spilogona* (23% of the total number of species so far known to occur there), mainly by arctic or arctic-montane species. In addition to *Spilogona*, a rather high species richness was also found with the genera *Phaonia* (10%), *Helina* (11%), *Hydrotæa* (12%).

As a result of this work, the fauna of Russia as a whole has been enriched by six species of muscids: *Spilogona aenea* Hockett, 1965, *Spilogona bifimbriata* Hockett, 1965, *Spilogona fulvibasis* Hockett, 1965, *Spilogona*

incerta Hockett, 1965, *Spilogona separata* Hockett, 1965, and *Spilogona trigonifera* (Zetterstedt, 1838). All these species, except *Spilogona trigonifera*, are new for the Palaearctic region. *Spilogona trigonifera* was previously known only from North America and Greenland (including East Greenland), so this species is new not only for Russia, but also for the entire Eurasian continent. In addition, the data obtained have enlarged our knowledge of the distribution of species previously known only from Europe or Siberia, and have made it possible to expand the known distribution as far as the Far East for 10 species: *Mydaea anicula* (Zetterstedt, 1860), *M. palpalis* Stein, 1916, *Spilogona depressula* (Zetterstedt, 1845), *S. genualis* Hockett, 1965, *S. lapponica* (Ringdahl, 1932), *S. pacifica* (Meigen, 1826), *S. placida* (Hockett, 1932), *S. quinquelineata* (Zetterstedt, 1838), *S. semiglobosa* (Ringdahl, 1916) and *Coenosia lineatipes* (Zetterstedt, 1845).

Additional material from various northern territories of Russia, in particular from the Magadan region, has enabled not only the distribution of individual species to be clarified but also the taxonomic status of two species to be revised. Thus, *Coenosia shumshuensis* Shinonaga & Zhang, 2000, described from the Kurile Islands (Shumshu Island), is now established as a junior synonym of *Coenosia alaskensis* Hockett, 1965, described from Alaska; and *Coenosia remissa* Hockett, 1965, also from Alaska, is here shown to be a junior synonym of *Coenosia ciliata* Hennig, 1961, described from Transbaikalia.

In general, the fauna of the Muscidae of the Magadan region is represented mainly by widespread species, but this, as already noted, is a result of the fragmentary study of the region. Already a significant proportion of the fauna consists of species with a Siberian-American distribution as well as of species which are found along the Pacific coast of Eurasia (e.g. *Coenosia xuei* Cui & Li, 1996). Additional studies in this region and in the adjacent areas will not only increase the list of species of Muscidae of the Magadan region but may also reveal solutions to questions regarding the genesis of the muscid fauna of Russia as a whole.

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